

REMARKS

Favorable reconsideration and allowance of this application are requested.

By way of the amendment instruction above, claim 12 has been revised so as to recited a Markush grouping of anthraquinones and polysulfides. It will be observed that the expressions employed in the amended version of claim 12 are still sufficiently broad to cover derivatives and chemical equivalents of such compounds. Accordingly, the Examiner's rejection of claim 12 under 35 USC 112 is believe to have been mooted.

The only remaining issues to be resolved in this application are the Examiner's art-based rejections advanced against all pending claims herein. Specifically, claim 25 attracted alternative rejections under 35 USC 102(b) or 103(a) as allegedly being anticipated by or obvious over WO 92/03609. Claims 1-3, 7-8 and 13-14 attracted a rejection under 35 USC 103 as allegedly being obvious over WO 92/15624, while the "admitted prior art" on pages 19-25 of the specification has been combined with WO 92/15624 has been rejected as allegedly obvious therefrom. Finally, claims 23 and 24 have been rejected separately over the references applied to claim 4, and further in view of Swedish Appln. 81020828 or Nimmerfroh et al. As will become evident from the following discussion, none of the Examiner's rejections is appropriate against the claims pending herein.

Applicant notes that, in rejecting claim 25 as allegedly being unpatentable over WO 92/03609, the Examiner states that the "DZED" bleaching sequence produces a pulp with a viscosity of greater than 21 cp and a brightness of 88%GE. The Examiner then concludes that, because the applicant has not shown the 89 ISO to be brighter than 88% GE, it would have been obvious for an ordinarily skilled person simply to adjust the parameters to obtain a brighter pulp. The Examiner has, however, failed to recognize two points about the technology disclosed in WO 92/030609. First, the process described in the reference includes the stages of "D" (treatment with chlorine dioxide), "Z" (the ozone treatment stage) and then "E" (extraction), "DZE", while the

present applicant's invention is a distinctly different (and unobvious) "ZED" sequence. Second, the "DZE" sequence described in the reference includes conventional water-washing between stages.

The Examiner identifies an example presented in the WO 92/03609 reference as producing a pulp with the viscosity of 25.2 and a brightness of 88%GE.¹ This pulp is reported to have been produced using the "DZED" sequence with the "D" stage being chlorine dioxide, directly to an ozone stage, then to extraction followed by washing, then a second "D" stage.

The Examiner has thus apparently erroneously concluded that the present applicant's invention has been disclosed in example 50 of WP 92/03609. As mentioned above, however, example 50 describes a "DZED" with washing between the extraction and the second chlorine dioxide stage (see page 9, lines 2-5 of WO 92/03609). Therefore the viscosity and brightness measurements cannot be directly compared as the Examiner has erroneously apparently done.

With regard to WO 93/15624, applicant notes that it discloses a bleaching sequence of "DZE" – that is, a sequence having a chlorine dioxide stage, followed by an ozone stage, followed by extraction. While it is true there is no washing between the steps disclosed, and that the sequence can be repeated to yield "DZEDEZ", there still exists no discussion of benefits of a *single* "ZED" sequence. In his discussion of this reference, the Examiner appears to suggest that the benefits identified from the applicant's invention of a "ZED" sequence would obviously ensue by virtue of the fact that the "DZEDEZ" sequence merely includes "ZED" stages. This conclusion however is oversimplistic and is factually erroneous.

The logic used in such an analysis suggests that, just because a "D" stage is known as is the "Z" and "E" stages, then putting such stages together in a sequence

¹ Although the Examiner cited example 20, it appears that he actually meant example 50 on page 20, and thus applicant's response has been made based on such an assumption.

should have been obvious to one skilled in the art. Such an analysis fails, as one cannot simply divorce the ZED sequence in the reference from the starting "D" stage and the ending "EZ" stages and then obviously arrive at the applicant's claimed invention. To assert, as the Examiner has apparently done, that an ordinarily skilled person would simply pick the exact sequence of "ZED" from the necessary sequence of "DZEDEZ" of WO 92/15624 is based not on any suggestion contained in that reference, but instead is based impermissibly on the present applicant's invention. Accordingly, withdrawal of the rejection against claims 1-3, 7-8 and 13-14 is in order.

Applicants are confused by the Examiner rejection of claim 2 based on WO 92/03609. Specifically, applicants have carefully reviewed that reference and cannot find any numerical reference to pH. Hence, the Examiner's rationale with respect to claim 2 is erroneous and must be withdrawn.

The Examiner rejects claims 7 and 13 based on page 24 of WO 93/15624 stating that "other 'D' and 'Z' stages could be used." (The stages identified on page 24 of WO 93/15624 as useful include "chlorine dioxide, ...alkaline extraction...oxygen and/or hydrogen peroxide...chlorine dioxide...and ozone.") Applicant's claims 7 and 13 both address the use of chlorine dioxide (D) and extraction (E) stages **prior to** the first stage of ozone (Z) treatment. Hence, the Examiner's rejection of claims 7 and 13 is erroneous and must be withdrawn.

Claim 8, identifies a treatment with oxygen, peroxide or both, prior to the treatment with ozone, is rejected based on page 19, lines 22-24 of WO 93/15624. That portion of WO 93/15624 identifies the use of oxygen, peroxide or combinations of the two – but **only after** the extraction step. The present invention therefore clearly defines a sequence which is not disclosed or contemplated by WO 93/15624.

Claims 4-6, 9-12 and 15-22 were rejected by the Examiner as unpatentable over WO 93/15624. As discussed previously, WO 93/15624 does not disclose or suggest a sequence as defined by the present applicant's claims. For this reason, the Examiner

then apparently turns to the applicant's own specification at pages 19-25. Applicant cannot address the Examiner's rejection as the specification in the applicant's file does not contain pages 19-25 and the Examiner's comments are insufficient to identify specifically any prior art discussion that does appear in the specification. Hence, for this reason, any continued rejection of claims 4-6, 9-12 and 15-22 on this basis must not be "final".

The same defect in the rejection as discussed above with respect to claims 4-6, 9-12 and 15-22 is also present in the Examiner's rejection of claims 23 and 24 under 35 USC 103 as it includes the asserted "admitted prior art" in combination with WO 93/15624 and further in view of Swedish appln. 81020828 or Nimmerfroh et al. Applicant notes that the Swedish '828 application is inappropriate against the present invention as it discloses washing between the bleaching stages.

With regard to Nimmerfroh et al, applicant notes that ozone as a bleaching stage is disclosed, with the "E" stage being at a pH of no lower than 10 with washing following the "E" stage if chlorine dioxide is used. In contrast, the present invention contemplates the "E" stage as raising the pH of the material to no higher than 7, then following immediately with a chlorine dioxide, "D", stage without washing. Therefore, the present application is distinctly different than, and could not "obviously" be derived from the sequence of bleaching presented in the Nimmerfroh et al article. One skilled in this art would therefore not have employed a "ZED" sequence as defined in the present applicant's claims based on the Nimmerfroh et al reference.

With regard to the Examiner's comments on the "N" stage, Nimmerfroh et al does not identify the benefits of an "N" stage (neutral stage) followed by alkaline extraction as lowering the wash water requirement while improving the Kappa number. Additionally, this use of the neutral stage is not suggested, as the results without it are comparable and the additional concerns regarding the addition of the base material. For this reason also, Nimmerfroh et al is inappropriate as a reference against the present invention.

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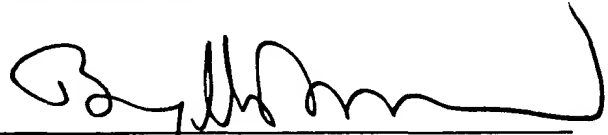
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In view of the amendments and remarks presented above, applicant suggests that this application is in condition for allowance, and Official Notice to that effect is solicited.

Respectfully submitted,

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APPENDIX I

Marked-Up Version of Amended Claims Pursuant to 37 CFR §1.121(c)

12. (Amended) A method as recited in claim 2 further comprising (d), prior to step (a) treating the material in an alkaline chemical pulping process that includes at least one selected from the group of anthraquinones and polysulfides [anthraquinone, polysulfide or the equivalents or derivatives].